

and expends resources to comply with the comprehensive regulations the Commission has adopted.

D. Experience with Local Exchange Carriers and AT&T Cannot be Applied to the Cable Industry

The Commission's interest in productivity issues appears to be inspired by its experience regulating the telephone industry. Therefore, it is essential for the Commission to recognize that there are substantial differences between the services, architecture, technology, and operations of telephone and cable companies. Those differences make the productivity experience of the telephone industry largely irrelevant to the cable industry.

Cable systems historically were designed to deliver a single service: television. In technical terms, the service can be characterized as analog, broadband, and broadcast. By contrast, the telephone companies deliver a mixture of analog and digital services, primarily narrowband in nature, and primarily switched. The dominant service the telco networks have been designed to accommodate is voice telephony. The Central Office plays a central role in the telephone network. The Head End is centrally located in the cable system topology, but plays a much less central role in the network. As a result of these differences, the telco network is switching-oriented; the cable system is transmission-oriented. Therefore, a major portion of telephone company investment is in switching. The "drop" part of the network (from distribution cable to the premises) is a negligible part of the telco network (only a few percent of the circuit

mileage), but a major part (around 45% of circuit mileage) of the cable system.

These and other technical differences have several implications for the relative ability of the two industries to generate productivity increases. For example, the deployment of fiber optic transmission systems is generally understood to have had a substantially positive effect on telephone company productivity. As cable companies deploy fiber, one might anticipate a similar effect on cable system productivity. It is important to realize, however, that broadband systems are being utilized in quite different ways by telcos and cable systems.

Telephone companies use broadband transmission today primarily to aggregate multiple narrowband circuits onto a single broadband system. Doing so substantially reduces the per-circuit cost. Cable systems, by contrast, use fiber today primarily as a "one-for-one" replacement of existing coaxial cable systems, for the purpose of delivering a single broadband signal.

As another example, a significant driver of telephone company productivity has been the rapidly falling cost of switching. Being less electronics/computing intensive, due to the lack of switching in their current networks, cable systems cannot be expected to show the same productivity trends as telephone networks.

In sum, the substantial differences between cable and telephone technology rule out the use of LEC or AT&T productivity offsets for the cable industry. These differences suggest that,

if anything, cable industry productivity advances will be below those of telephone companies. Therefore, the Commission has no basis for adjusting the productivity figure implicit in the existing formula.

E. There is No Basis for a Consumer Productivity Dividend for Cable Companies

A significant rationale for the consumer productivity dividend for telephone companies was that price caps were to replace traditional rate of return regulation and provide telephone companies an opportunity for greater earnings. One significant source of these earnings was the opportunity to shed the inefficiencies induced by regulation. Cable companies are moving from an unregulated environment, where they had every incentive to operate efficiently, to a regulated environment. Therefore, there is no reserve of inefficiencies from which a consumer productivity dividend could be funded.²¹ Imposition of a consumer productivity dividend would only serve to drive a large number of firms from benchmark to cost-of-service regulation.

²¹ As discussed above, the imposition of regulation will inevitably induce inefficiencies, creating, in effect, a consumer productivity tax.

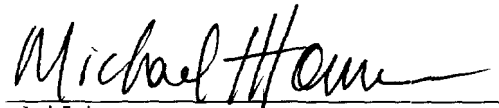
CONCLUSION

Time Warner agrees with the Commission's conclusion that a backstop scheme of regulation is necessary to ensure that cable price regulation does not produce unfair or confiscatory results. Traditional cost-of-service regulation may provide helpful guidance in some cases. However, for the reasons set forth above, the Commission should not discourage or prevent the development of a wide range of more focused and less burdensome alternatives. Indeed, the Commission should actively encourage cable operators to develop and present innovative forms of cost showings.

Respectfully submitted,

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**A PROPOSAL FOR BACKSTOP REGULATION
FOR CABLE TELEVISION PRICES**

Prepared for

Time Warner Entertainment Company, L.P.

By

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I. INTRODUCTION

The Federal Communications Commission ("Commission") issued a Report and Order and Further Notice of Proposed Rulemaking ("Report and Order") that adopted a benchmark and price cap approach to regulating the prices of cable franchisees.² The Report and Order might require some cable franchisees to lower or maintain their prices below their costs. The Commission released a Notice of Proposed Rulemaking ("Notice") on July 16, 1993, for its MM Docket 93-215 to provide a backstop for such franchisees. The Notice proposes to allow them to report their costs and to plead for higher prices than the Report and Order would have specified.

A backstop of some kind seems appropriate. The question is, what should be its design? The answer is important because the customers, employees, owners, and suppliers of the affected franchisees will be hurt unjustly if the design is poor, and some of the nation's resources would be wasted. In our view, the Commission's proposed cost-of-service approach for a backstop has serious incentive and measurement problems. The Commission would have to solve these problems to ensure that the resulting rates are economically efficient and equitable. The complexity of cost-of-service regulation will consume substantial resources for a long period of time before it is ready for use as the sole backstop approach.

Because of the problems with the cost-of-service backstop approach, we propose that the Commission also accept showings based on alternative approaches. There is a broad range of potentially viable alternatives, some of which are mentioned in the Notice.³ We focus

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² MM Docket 92-266, FCC 93-177 (May 3, 1993). 58 FR 29736 (May 21, 1993).

³ *Notice*, e.g., pars. 71-5.

attention on one particular alternative. In focusing on this proposal, we do not mean to suggest that other approaches might not also be useful. Our proposal is that a showing could request a backstop formula based on a price regression that captures the circumstances of the cable franchisee which the benchmark currently inappropriately penalizes. Our alternative is simpler, more objectively verifiable, and less arbitrary than the cost-of-service approach.

This paper is organized as follows:

- Section II explains the incentive problems with a cost-of-service approach.
- Section III explains the complexities of such a cost-of-service approach.
- Section IV shows that regulators of the telecommunications and electricity industries are moving away from cost-of-service regulation.
- Section V proposes an alternative backstop process that avoids the problems of a cost-of-service approach.
- Section VI shows an example of a backstop formula, which illustrates part of a showing which our proposal envisions a cable operator would submit.

II. INCENTIVE PROBLEMS WITH A COST-OF-SERVICE APPROACH

Regulating the prices of a cable franchisee based on estimates of its actual costs could distort its incentives. In any particular case, the actual effect of such incentives might be small. But since the size of the effects might be difficult to detect, the Commission and local franchise authorities would feel compelled to mitigate the results of the uneconomic incentives. They would be tempted to spend resources to investigate a cable franchisee's business decisions and second-guess the decisions. Some cable franchisee actions might be responses to the uneconomic incentives, and others might be prudent business decisions. To attempt to sort out which is which, the Commission and local franchise authorities might require prior or after-the-fact justifications, and they might prohibit certain actions or disallow expenditures from the rate base. Many cable business decisions would create an opportunity for complaints and interventions by competitors. Thus, cost-of-service regulation not only can cause waste and higher rates than necessary through its incentive distortions; it can also consume substantial resources from the industry and regulators in a regulatory process that attempts to control the effects of those distortions.

The uneconomic incentives from cost-of-service regulation can take many forms.

We discuss four such forms here:

A. Weak Incentives To Minimize Costs

Cost-of-service regulation allows the pass through of all prudently incurred costs³ into rates. One of the main criticisms of cost-of-service regulation is that this cost pass through offers little incentive for the regulated firm to be efficient:

In a competitive industry, firms are motivated to produce efficiently—to find ways to cut production costs—by the hope of increased profits and by the fear that failure to keep costs low will cause more efficient firms to capture their customers by lowering price. In a regulated industry, the stick is usually unavailable. The carrot has diminished influence, for, if ratemaking is based upon actual costs and is performed accurately and promptly, firms do not benefit by adopting cost-saving devices; the total saving produced by increased efficiency flows to the consumer.⁴

Regulators' attempts to create a regulatory environment that mimics the outcome of a competitive market then falls short: rates are based on costs, but the costs are those faced by firms that operate in an environment that does not offer incentives and rewards for superior performance or for cost efficiency. In fact, under traditional rate of return regulation, if a company is particularly efficient and succeeds in reducing its costs and its risks, its cost of capital will also decline and, with it, its allowed rate of return. Professor Alfred Kahn addresses this point:

If the unusually efficient company's resultant lower cost of capital is automatically translated into lower permitted profits per dollar of invested capital—something that would *not* automatically happen under pure competition—will it not have been deprived of the incentive to be efficient, or to become more so?⁵

³ The determination of whether costs are prudent can be difficult and has been the subject of lengthy and expensive regulatory proceedings.

⁴ Stephen Breyer, *Regulation and Its Reform* (Cambridge: Harvard University Press, 1982), p. 47.

⁵ Alfred Kahn, *The Economics of Regulation: Principles and Institutions* (Cambridge: MIT Press, 1988), vol. I, *Economic Principles*, p. 45.

B. The A-J-W Effect

One oft-cited theory of inefficiency is attributed to Averch, Johnson, and Wellisz (A-J-W).⁶ According to this theory, if the allowed rate of return exceeds the cost of capital, a regulated firm has an incentive to substitute capitalized factors of production (such as plant) for expensed factors of production (such as labor). A corollary to this "gold-plating" theory is that the cable franchisee would have a distorted incentive to offer new or enhanced products and services that called for new capital expenditures.⁷

Professor Kahn suggests that "these dangers can be drastically attenuated or eliminated to the extent that regulated companies can be exposed to the same incentives and pressures as apply *outside* of the regulatory context."⁸

Suppose instead that the allowed rate of return is below the cost of capital. Then, if the firm does not exit the market altogether, it would have an incentive to inefficiently substitute expensed factors of production for capitalized factors of production. For example, it would have an incentive to pay escalating maintenance expenses on old plant rather than to invest in modern, low-maintenance plant. It would also have an artificial incentive not to offer new services and products that would require increases in its investment in the business. These uneconomic investment disincentives would undermine the Commission's intent that cost-of-

⁶ Harvey Averch and Leland L. Johnson, "Behavior of the Firm under Regulatory Constraint, *American Economic Review*, December 1962, pp. 1052-69; Stanislaw H. Wellisz, "Regulation of Natural Gas Pipeline Companies: An Economic Analysis," *Journal of Political Economy*, February 1963, pp. 30-43.

⁷ Empirical evidence supporting the A-J-W effect has been ambiguous. According to Claire H. Hammond ("An Overview of Electric Utility Regulation," in *Electric Power—Deregulation and the Public Interest*, J. Moorhouse, ed., San Francisco: Pacific Research Institute for Public Policy, June 1986, p. 54), data and specification problems hamper researchers' ability to isolate the A-J-W effect. Furthermore, in the case of electric utilities, the presence of regulatory lag may counteract the A-J-W effect. Regulatory lag can cause utilities to earn a rate of return different from the allowed rate of return. Thus, "the utility may have incentives to economize on all costs, including capital costs, because cost minimization translates directly into greater profits, or smaller losses, for the firm."

⁸ Kahn, *The Economics of Regulation* (Cambridge: MIT Press, 1988), vol. II, *Institutional Issues*, p. 56.

service regulation be designed "to assure that cable operators may fully respond to incentives to provide modern communications infrastructure and to respond to competitive forces."⁹

C. Vertical Integration Incentives

Vertical integration can result in significant economies of scope and other cost efficiencies.¹⁰ Yet, regulators in telecommunications, electric power, and other industries have often grappled with the allegation that cost-of-service regulation could give a regulated firm an artificial incentive to integrate vertically into unregulated products and services. According to this argument, the unregulated division would have an incentive to overprice the products and services it supplies to the regulated cable system, which could allegedly pass the costs on to its subscribers.

In fact, the elasticity of demand and the availability of substitutes can limit such an incentive. But, to prevent such behavior, regulators have overseen transactions among divisions, prescribed the prices or allowed rates of return of other divisions, and imposed safeguards of various kinds.¹¹ For example, prior to the 1984 divestiture of AT&T, its network equipment manufacturer Western Electric was nominally unregulated. Yet regulators in effect controlled its rate of return by threatening disallowances if it were to earn profits much higher than the telephone operating companies' authorized rates of return.

The same concern has existed in the electricity industry. The prices at which electric power or fuels can be passed forward to electric utilities by their affiliated generation company's fuel divisions or mines have been the subject of extensive hearings and litigation. For example, opposition to the proposed merger between Southern California Edison and San Diego Gas & Electric was partially based on the possibility that excessive prices would be charged for inputs (electric power) purchased by the regulated merged company subject to cost-of-service regulation from its unregulated input supplier (Mission Energy, owned by Southern California Edison).

⁹ Notice, par. 9.

¹⁰ See, e.g., direct testimony of Paul Joskow (FERC Docket No. EC-89-5-000), on behalf of Southern California Edison and San Diego Gas and Electric Company, June 5, 1989, p. 10.

¹¹ Even in the benchmark context, the Commission proposes to limit increases in the allowable programming expenses to the rate of inflation. (Notice, Fn. 70.)

In 1988, the Federal Energy Regulatory Commission (FERC) led an inquiry into alleged anticompetitive practices involving marketing affiliates of interstate pipelines.¹² The inquiry related to allegations of preferential treatment in terms of prices, information, curtailment and scheduling on behalf of interstate pipelines with regard to their own marketing affiliates *vis-à-vis* nonaffiliated shippers. The inquiry also addressed sales by interstate pipelines of the lowest cost gas purchases to the marketing affiliate for sale in the competitive market leaving the higher priced gas to the regulated market for its system supply.¹³ In its final rule the FERC decided not to require divestiture of the affiliates but established standards of conduct and reporting requirements to prevent preferential treatment of marketing affiliates.

The Notice asks for comment on whether a cost-of-service approach should include in regulated cost accounts a mark-up on a cable company's own programming expense.¹⁴ The answer is yes. No mark-up would be an example of an artificial barrier to vertical integration. Programming is risky. If the Commission were to prohibit compensating stockholders for the risk they bear, then the stockholders would justifiably be inclined to avoid such an unremunerative business and to depend instead on outside programming. Because of the efficiencies of vertical integration, a cable company's internal costs of programming plus a reasonable risk-compensation mark-up could be lower than the price of programming it might buy on the open market. (The price on the open market, of course, also includes a mark-up to compensate for risk.) Thus, contrary to the Commission's goals, a prohibition on a mark-up on internal programming could increase—not decrease—the cost-of-service and thus raise cable service prices.

Total costs are often lower if two different operations are integrated into a single firm. Such economies of scope are especially likely for vertical integration. Besides lowering

¹² Department of Energy, Federal Energy Regulatory Commission, 18 CFR Parts 161, 250 and 284, "Inquiry into Alleged Anticompetitive Practices Related to Marketing Affiliates of Interstate Pipelines," (Docket No. RM87-5-000; Order No. 497), June 14, 1988.

¹³ FERC *Inquiry*, p. 36, complaint voiced by Maryland People's Counsel.

¹⁴ *Notice*, Fn. 24.

costs, vertical integration can speed up new service introduction and can improve customer satisfaction with the new services. The Commission recognizes such opportunities.¹⁵

Consider a few elements of the potential differences between operations with and without vertical integration. The open market, without vertical integration, often requires contractual relationships, and developing detailed contracts can be expensive. Even with their best efforts, the contracting parties often find it difficult to anticipate all contingencies. The relationships thus can be inflexible in the face of changing circumstances. Further, since the parties have different objectives, they hesitate to provide each other with full information about goals, needs, and market information even though such information would enable them to plan better before production and to coordinate better during the production and delivery stage of their transaction. If they do not provide each other with full information, they either do without such information, which yields inferior results, or they replicate missing information, which yields higher costs. In contrast, different parts of an integrated firm usually have more common interests. They also have chains of management that converge at a person who can quickly encourage or enforce teamwork.

Because of the economic benefits of vertical integration, our view is that the Commission should not discourage vertical integration because of the potential for this problem. Nonetheless, cost-of-service regulation introduces this type of concern and the legal and administrative burden of dealing with it. The Commission has already issued or proposed rules regarding channel occupancy and programming prices that deal with vertical integration of cable television companies. These controls may effectively prevent alleged vertical integration "abuses" and distorted incentives. The danger is that wider application of cost-of-service regulation might tempt the Commission or franchise authorities to impose more expensive and burdensome review and control processes.

D. Predation and Cross-Subsidy Incentives

Another charge often made against cost-of-service regulated firms is that they have an incentive to carry out predatory pricing against competitors. A nonregulated firm would have difficulty in recouping its short-run losses incurred while it carries out predation; in

¹⁵ See, e.g., *Competition, Rate Deregulation and the Commission's Policies Relating to the Provision of Cable Television Service*, 5 FCC Rcd 4962, 5003-11 (1990).

contrast, the argument goes, the regulated firm can use funds from regulated operations financed by rate payers, so predation costs it little or nothing. Regulators are also often concerned about alleged cross-subsidies from regulated operations to unregulated operations. A company might have an incentive to manipulate the cost allocations between the regulated operation and any unregulated operation it also owns, yielding so-called cross-subsidies.

In practice, the elasticity of demand and the availability of substitutes limit a firm's ability to pass costs on to rate payers of the regulated service. Nonetheless, regulators tend to spend resources to prevent or detect both predatory actions and cross-subsidies. Again, we fear that the wider application of cost-of-service ratemaking would tempt the Commission or franchise authorities to institute expensive and burdensome policing procedures.

E. The Resulting Regulatory Morass and Market Distortions

The Commission and participants in the telecommunications industry are familiar with all the above issues. Consumer groups and competitors have made all these arguments regarding the local exchange carriers and AT&T in the past, and the Commission and state regulators have grappled with the issues. If the Commission were extensively to use cost-of-service regulation for cable companies, even as a backstop, then history would tend to repeat itself.

Let us be clear: all the above theoretical incentives might have small or large effects in the cable industry. At this early stage, we and—we presume to say—the Commission know too little about how cost-of-service regulation would affect cable companies to predict the size of the incentive distortions. If they turn out to have large effects in spite of the elasticity of demand and the availability of substitutes, then of course they would be policy issues. However, even if the actual effects would be small, the perception that there are such effects would remain, and we predict that the Commission and local franchise authorities will respond to those perceptions. In general, regulation would be subject to the "tar baby" effect, continually expanding its scope and complexity to deal with perceived distortions from each successive round of new regulations. Administrative procedure and litigation would replace efficient business decisions in the cable industry, without any assurance that the outcomes would be superior economically for cable subscribers and for the cable companies. The lesson

is that, in weighing the pros and cons of cost-of-service regulation, the Commission should count these regrettable but predictable accompanying burdens on itself and the industry.

III. COST-OF-SERVICE PROCEDURES WOULD BE COMPLEX AND ARBITRARY

To set "fair and reasonable" rates under cost-of-service regulation requires estimating (1) the rate of return and (2) the rate base and expenses.

A. Rate of Return

To emulate competitive outcomes, regulators attempt to set the authorized rate of return equal to a firm's cost of capital. Such a return would allow the firm to attract capital in the open capital market. To calculate the firm's overall cost of capital, a regulator assesses the cost of equity capital, the cost of debt, and the relative amounts of debt and equity.

1. *Measuring the Cost of Equity Capital*

As the Notice recognizes,¹⁶ a firm's cost of equity capital is not immediately observable; it must be *estimated*. There are various methods for estimating it; discounted cash flow and the Capital Asset Pricing Model are the most common. The problem is that the cost of equity depends on investors' perceptions of the expected growth and risk associated with the firm's operations. It is a *forward looking* concept and is therefore difficult to measure. According to Professor Kahn:

...the principal difficulty is that what investors are capitalizing in the purchase price of the securities they buy is not current but anticipated earnings; and there is no objective measure of what their anticipations were or are.¹⁷

The Commission acknowledges that the cost of equity is determined by investors' perceptions of risk and growth expectations. The Commission is intimately familiar with the different methods for estimating the cost of equity capital and the pros and cons of each. In view of this, we are surprised that the Notice suggests establishing a rate-of-return using

¹⁶ Notice, par. 51.

¹⁷ Kahn, *The Economics of Regulation*, vol. I, pp. 46-47.

estimates of the cost of capital for surrogate industries, and we are surprised that it suggests applying this single rate of return to all franchises requesting backstop relief.¹⁸ The choice of a single average rate of return will result in a rate of return which will differ from the true cost of capital for a large number of the cable operators unless they all have the same characteristics, the same capital structures, the same risks, bond ratings, etc. Further, use of the comparable or surrogate approach to estimating the cost of equity has been widely criticized.¹⁹

The cost of equity capital differs substantially among companies even within the same industry. Investors can have very different expectations regarding growth and risk. Many company-specific factors influence investors' expectations regarding growth and risk for cable operators, such as demographics, capital structure of the company, etc.

In this paper we are not recommending a particular method for calculating the cost of equity; nor are we recommending particular numbers for the cost of equity for any company. However, in this section we use the Capital Asset Pricing Model (CAPM) and the *Value Line Investment Survey's* estimated betas to illustrate with easily available data the following two points:²⁰

- Contrary to the Notice's suggestion, the cost of equity capital of cable operators appears to be much higher than it is for the market as a whole.
- The cost of equity capital appears to vary considerably among cable operators, so we recommend that the Commission *not* apply a uniform cost of capital to all franchisees that seek to justify prices above the benchmarks.

From the most recent *Value Line* reports available for cable television stocks, we selected the three companies that have the highest percentage of their revenues from cable television operations. (The others are so diversified that their financials might tell us little about cable operators.) The three companies are Cablevision Systems, Comcast, and Telecommunications, Inc. (TCI). (Even these three are not 100 percent cable operators.) These

¹⁸ Notice, pars. 46-49.

¹⁹ See, for example, Stephen Breyer, *Regulation and Its Reform*, pp. 43-44.

²⁰ *Value Line Investment Survey* (New York: Arnold Bernhardt & Co.), June 25, 1993.

are *Value Line*'s estimates of their betas, which, according to the CAPM, is a measure of their risk.²¹

<u>Company</u>	<u>Beta</u>
Cablevision Systems	1.45
Comcast	1.60
TCI	1.65
Weighted Average ²²	1.63

Those betas are among the highest that *Value Line* calculated for the 1700 stocks on which it reports. In the Commission's 1990 Represcription Proceeding, it considered CAPM as a method to calculate local exchange carriers' costs of equity capital. Although the Commission recognized the CAPM's potential as a methodology to provide estimates of the cost of equity capital with the same reliability as the discounted cash flow approach, the Commission decided not to use *Value Line*'s betas. The Commission wrote:

The fault with the CAPM estimates submitted in this proceeding lies with their unrealistically high betas. ... *Value Line* betas are betas which have been adjusted so as to *raise* the level of betas less than one and *lower* the level of betas greater than one. While such adjusted betas have their use, we do not believe use of an adjusted beta is consistent with the theory of CAPM.²³

If the Commission is correct, then the true betas for the three companies in the above table would be even higher than the above table shows.

²¹ *The Value Line Investment Survey* (New York: Value Line Publishing, June 25, 1993), pp. 379-389. The estimated betas can vary over time. For these three companies, the betas that *Value Line* reported in June 1993, are higher than the ones reported a year ago or two years ago. The most likely explanation is the following: the stock market anticipates that regulation will depress cable company earnings relative to fixed expenses such as interest payments. Thus, the volatility of the returns to cable stocks will be higher than it used to be.

²² Consistent with the CAPM portfolio theory, the weights are the market value of outstanding stocks. TCI dominates the weighting.

²³ 5 FCC Rcd 7507, 7522-23 (1990), emphasis added. The *Value Line* adjustment is based on the premise that, in general, betas move over time towards one.

In contrast, the beta has a value of one for the portfolio of all the companies that the *Value Line Investment Survey* studies. Thus, the nondiversifiable risk of the equity investments in these three cable companies is 63 percent higher than that of the *Value Line Investment Survey* population. The Commission mentions the Standard & Poor's 400 as a possible standard for comparison. The S&P 400 portfolio would probably also have a beta of about one, or near enough to one for the purpose of our simple illustration. Thus, to the extent that these three companies are representative of the cable industry, equity investments in cable companies are about 63 percent riskier than the S&P 400. If the commission is correct that *Value Line* betas are biased toward one, then the cable companies' risk is even greater.

The cost of equity capital is naturally much higher for riskier companies than it is for less risky companies. Again, we are not recommending a particular methodology or a particular cost of capital for any company, but to illustrate the potential importance of many cable companies' high risk, consider the following calculation. The historical average premium in return that investors require for a high-beta company over that for a low-beta company has been estimated to be about 8.6 percent times the difference in betas.²⁴ Assume that the S&P 400 has an average beta of one. The Notice suggests that the median return on equity for the S&P 400 is about 13 percent.²⁵ If so, then the cable company investors would require a return on equity of about 18.4 percent (13 percent, plus 8.6 percent times the difference in betas of 0.63).

Now consider the differences among cable companies. The *Value Line* betas would imply the following costs of equity capital for the three cable companies in our sample (remember, our calculations are illustrative):

²⁴ Ibbotson Associates, *Stock, Bonds, Bills, and Inflation*, 1993 Edition.

²⁵ Notice, par. 52.

<u>Company</u>	<u>Cost of Equity</u>
Cablevision Systems	16.8%
Comcast	18.2%
TCI	18.6%
Weighted Average	18.4%

Thus, the costs of equity capital can vary significantly among cable operators. It would therefore be inappropriate for the Commission to prescribe a single cost of capital for all cable companies.

In the electricity industry, just as for the state jurisdictions of the local exchange carriers, state regulatory commissions engage in rate cases to determine the appropriate rate of return for individual electric utilities. As Attachments A and B show, the allowed rate of return on equity capital for electric utilities can differ by almost 300 basis points.

We understand the Commission's concern that a myriad of individual rate cases would be administratively very burdensome.²⁶ But applying an average to different companies would result in inequities and inefficiencies. Suppose that the Commission were to offer a standard cost of equity capital for which a franchisee could opt. Such an option would simplify procedures for companies that were to choose it. Its optional character would tend to avoid unfair outcomes. This option might have few benefits, however, if a cable franchisee must choose between taking an average cost of equity capital now versus being granted its individual cost of capital only after lengthy proceedings.

2. Measuring the Cost of Debt Capital

The cost of debt capital differs among companies depending on investors' perceptions of risk associated with the firm's operations and the amount of debt in the capital structure. As an example, consider the electric utility industry. One might have assumed that cost-of-service regulation in that industry would have driven the cost of debt to uniformity. Not so. As shown in Attachments A and C, the yields on electric utility bonds vary over 200

²⁶ Notice, par. 46.

basis points, depending on the bond rating. Thus, the Commission's suggestion of establishing a single cost of debt (based on the S&P 400 or a quartile of them) to be applied to the entire cable industry is not appropriate since it would differ significantly from the actual cost of debt for many of the individual cable operators. An additional complication facing the Commission is how to evaluate the cost of convertible debt that many cable companies have. Investors' expected returns from convertible debt are higher than the current yield on the securities because of their option value.

3. *Measuring the Capital Structure*

The Commission is familiar with calculating an overall cost of capital, obtained by taking a weighted average of the cost of equity and the cost of debt. In such calculations the Commission is accustomed to using the relative book values of equity and debt as the weights. But choosing a capital structure for determining an overall cost of capital for a cable company would be more complex than the Commission might wish. The capital structures of cable companies vary dramatically, so using an industry average capital structure would yield inequitable results. Furthermore, the Commission's traditional weighting scheme would give nonsensical results for many cable companies.

To illustrate the variation in capital structure, first consider Attachment D. For several cable companies, it shows the book value of long-term debt, the book value of equity, and the ratio of the debt to the book value of equity. The ratios vary dramatically among companies. For instance, Galaxie Cable has a debt-to-book ratio of 0.4; Jones Intercable has a ratio of 11.1; and one third of the companies on this list have a negative or near zero book value of equity, so the ratio is not meaningful. Attachment E shows the frequency distribution of the debt to book ratios graphically. Clearly, a uniform assumed capital structure would not treat companies equitably.

Next consider Attachment F, which shows the ratio of long-term debt to the *market* value of equity for the same list of companies.²⁷ This ratio also varies widely. For example, TCA Cable's ratio is 0.2, and Adelphia's is 7.1. Attachment G shows the results graphically. Again, an industry average or any fixed number does not fit the data well.

²⁷ For simplicity, we use the book value of debt in these calculations and in those of Attachment H.

Now consider a different issue. For telephone companies, the Commission is accustomed to using the book value of debt and equity to calculate the relative weights of debt and equity capital. That procedure might be practical for firms that have been regulated for a long time, so stockholders are conditioned to the effects of regulation. If the scale of unregulated operations is small, in long-term equilibrium the regulatory process tends to force the market value of a stock to approximate the book value. Still, using the book value of equity as a weight to calculate the total cost of capital for a *cable* company will often yield absurd results. As mentioned above, one third of our list of cable companies has a near-zero or negative book value of equity. Using book values of equity and debt as weights would yield an overall cost of capital that is near or below their cost of debt. Such a result is clearly nonsensical. Such risky firms cannot possibly have a total cost of capital that is dramatically lower than that of far less risky firms and equal to or less than its own cost of debt. This shows the inappropriateness of using book values as weights for the cable industry. An approach more consistent with finance theory would use the *market* values of equity and debt as the weights. Attachment H compares the debt-equity ratios for the cable companies when one uses the book value of equity versus the market value of equity. The two measures yield very different results, and there is only a modest correlation between the two measures.

B. Measuring the Regulated Rate Base and Expenses

A competitive market will value assets according to their replacement cost—the cost of replacing the reproductive capacity of the equipment in place with the most cost effective means available. By contrast, in most regulated industries the rate base is measured at its historical cost. According to Stephen Breyer, the reason for this is that "to determine the replacement cost of a plant or equipment is too complex a task for an administrative process."²⁸

The main problem is that historical cost in no way reflects either the effect of inflation or technological change on the true value of the asset. This is especially serious for long-lived capital assets whose true market value may increase many times (compared with its depreciated book value) during periods of rapid inflation or may approach obsolescence during periods of rapid technological change. Many regulators and academics alike have

²⁸ Breyer, *Regulation and Its Reform*, p. 38.

agreed that the use of a historical rate base (and straight-line depreciation along with it) results in inefficient investment decisions and in regulated prices that are not based on the true cost of providing the good or service. Nonetheless, regulators have chosen to continue to use this method because of its administrative simplicity. The problems, however, are well documented in the literature. Solutions suggested have included using "economic" depreciation²⁹ and adjusting the rate base for inflation.³⁰

Most of the literature discusses the problem for industries that have been regulated for a long time. For example, if the depreciation schedule is in error, it might cause a cost-of-service regulated firm to send inappropriate pricing signals causing inefficient consumer purchase decisions over time. Still, regardless of the depreciation schedule for investments, in an industry that has been regulated for some time, a regulator can assure the regulated firm that the stockholders will eventually recover the money spent on all investments. In contrast, when regulation is imposed on an industry after it has gone for many years without cost-of-service regulation, depreciation schedules that have caused book values to decline further than the economic value of the plant can prevent stockholders from ever recovering their past investments.

C. Allocation of Common Costs

Applying cost-of-service regulation to some cable television services requires determining which portion of a cable operator's capital investment and expenses is attributable to the provision of the regulated services versus the unregulated services. This is a difficult task because the provision of cable television services involves costs that are incurred jointly in the production of both regulated and unregulated services. These costs would be very different, due to the presence of economies of scale and of scope, if each of the services were provided separately. In his testimony before the Connecticut Department of Public Utility Commissioners, Professor Kahn addresses this problem:

²⁹ See Sally Hunt Streiter, "Trending the Rate Base," *Public Utilities Fortnightly*, May 13, 1982.

³⁰ See S. Brav, "Replacement Cost Accounting for Electric Utilities," 101 *Public Utilities Fortnightly*, May 25, 1978, pp. 20-25.

Consider the distribution system of a cable company. It is widely accepted that there are economies of scale in the provision of channel capacity: constructing one system capable of distributing 35 channels, for example, costs less than twice as much as one with 17 channels. This means that the costs of jointly supplying (say) 25 basic service channels and 10 channels dedicated to other uses will be less than the combined costs of building two separate systems of those respective sizes. In these circumstances, there is no economically precise way of determining the proper costs of each of the two separate systems.³¹

Simply as a strawman, imagine that the Commission were contemplating an allocation of certain categories of costs between regulated and unregulated services based on the relative number of channels in the two service categories. Such an allocator would not necessarily capture the cost-causative effects. It would also distort business decisions about investments, technology choices, and new services. Of course, there are many other cost allocation schemes available, but they are all subject to the same criticisms unless they are based on the principle that they attempt to assign to unregulated services those costs that are incremental to these services. If this principle were adopted, it might yield higher cost assignments to regulated services than other, noneconomic assignment principles would. Consequently, it might justify higher prices for regulated services of franchisees opting for the cost-of-service approach. The Commission should consider this trade-off between possibly higher regulated price levels from an economic assignment principle and the economically inefficient results from a noneconomic assignment method.

Visualize the coaxial cable strung along the streets of the nation's cities and towns, used to distribute the signals within neighborhoods. The cost of this coaxial cable is virtually independent of whether the system distributes, say, just 30 regulated channels or 35 channels (30 regulated and 5 unregulated channels). For example, the cost of amplifiers rises as the number of channels increases, but not proportionally. After some point, the relationship between amplifier costs and channels becomes highly nonlinear. Moreover, amplifier maintenance expenses and installation expenses do not necessarily rise at the same rate as the

³¹ Testimony of Alfred E. Kahn on behalf of the Connecticut Cable Television Association, Inc., Docket No. 811110, March 9, 1982, p. 16.

procurement costs rise. The allocation of amplifier costs would either be highly complex or highly inaccurate. Many other plant elements have similar characteristics.

That brief discussion of the technology indicates that readily available allocators—such as the number of regulated versus unregulated channels—would not reflect the costs that nonregulated services cause. Another complication is that the allocators and allocations would change over time. For example, if a cable franchisee reduced its number of pay channels from one year to the next, the channel allocation would increase the costs allocated to regulated services, potentially allowing a price increase.

Further complicating the picture, to increase a system's channel capacity, a cable operator could use either more capable amplifiers, larger-diameter coaxial cable, compression, or fiber-optic feeder. Given all the available engineering choices, a poorly designed procedure to allocate costs between regulated and unregulated services could tempt a firm to make technology choices that enable it to recover maximum costs from rate payers in regulated markets rather than choices that minimize costs. The elasticity of demand and the availability of substitutes would limit such an incentive, but the Commission could avoid such uneconomic incentives altogether either by allocating to unregulated services only those costs that are incremental to unregulated service or by allowing backstop showings that use approaches other than costs-of-service.

Inappropriate cost allocators could also distort business decisions about whether to add regulated or unregulated channels. Consider the following example:³² Suppose that a cable company currently provides 30 channels, all regulated. It currently collects \$10 per month per subscriber. Suppose that this revenue just covers its costs of \$10 per month (including the cost of capital). It is considering whether to add five new channels, all unregulated. If it were not subject to cost-of-service regulation, its additional revenue would be \$5 per month per subscriber. Its additional costs would be, say \$4.50 per month per subscriber. Thus, its additional profit would be \$0.50 per month per subscriber. The table below shows this "No Cost-of-Service Regulation" scenario. The cable operator's business decision would be to offer the additional channels, increasing its profit and providing more variety and satisfaction for its subscribers.

³² To keep the exposition simple, we omit demand elasticity effects.

Scenario 1
No Cost-of-Service Regulation

	<u>Before</u>	<u>After</u>
Regulated Channels	30	30
Unregulated Channels	0	5
Costs/Mo./Subscriber	\$10.00	\$14.50
Regulated Revenue/Mo./Subscriber	\$10.00	\$10.00
Unregulated Revenue/Mo./Subscriber	\$ 0.00	\$ 5.00
Total Revenue/Mo./Subscriber	\$10.00	\$15.00
Total Profit/Mo./Subscriber	\$ 0.00	\$ 0.50

Now assume instead that the company is subject to cost-of-service regulation. Suppose that the Commission were to require the company to assign all costs to unregulated services that are directly attributable to them (\$4.50 in this case), and suppose that the Commission were to require the company to allocate the original costs (\$10 per month per subscriber) between regulated and unregulated services in proportion to the number of regulated and unregulated channels. Then adding the five unregulated channels would reallocate 5/35 of its original costs, or \$1.43 per month per subscriber, to unregulated services. The table below shows this "Cost-of-Service Regulation" scenario.

	Scenario 2 <u>Cost-of-Service Regulation</u>	
	<u>Before</u>	<u>After</u>
Regulated Channels	30	30
Unregulated Channels	0	5
Costs/Mo./Subscriber	\$10	\$14.50
Costs Allocated to Regulated	\$10	\$ 8.57
Costs Allocated to Nonregulated	\$ 0	\$ 5.93
Portion of Original Costs	\$ 0	\$ 1.43
Directly Assigned New Costs	\$ 0	\$ 4.50
Regulated Revenue/Mo./Subscriber	\$10	\$ 9.00
Unregulated Revenue/Mo./Subscriber	\$ 0	\$ 5.00
Total Revenue/Mo./Subscriber	\$10	\$14.00
Total Profit/Mo./Subscriber	\$ 0	-\$ 0.50

Cost-of-service regulation might imply that the cable operator must lower its prices for basic service by \$1.43, from \$10 per month to \$8.57 per month, equal to the cost now allocated to basic service. However, our illustration assumes that the company lowers its regulated prices by 10 percent, or \$1.00 per month, the maximum the Commission requires. If \$5 per month for the unregulated channels were the profit-maximizing price in the "No Cost-of-Service Regulation" scenario, it is also the profit-maximizing price in the "Cost-of-Service Regulation" scenario. The cable operator would calculate that its total profit would fall if it offered the five new unregulated channels. The incremental revenue from the new channels would more than cover its incremental costs, but the \$1.00 per month price decrease for the regulated channels wipes out its additional profits. Thus, to avoid a loss, it should not offer the additional channels. In this simple illustration, we see that a noneconomic allocation process can distort business decisions about new services. Such a process would thus hurt both the cable operators and cable subscribers.